Hyperacute Stroke Management: The New Era

W.J. OCZKOWSKI, MD
PROFESSOR, MCMASTER UNIVERSITY
MEDICAL DIRECTOR CENTRAL SOUTH REGIONAL STROKE PROGRAM,
ACADEMIC HEAD DIVISION OF NEUROLOGY

Objectives
After this session participants will be able to understand:
1. Time is Brain - The New Era
2. Identification of Patients for Stroke Transfer
3. The Important Role of the Paramedic at the Scene
4. The Factors that Improve Stroke Treatment Times
5. Improving Door in to Door Out Time

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2. Unlabeled / Unapproved Use Disclosure - None
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1994
TIA
Clinical Assessment
Neurological Referral
Tests Arranged
Neurosurgical Referral
Stroke
Triaged by paramedics
Admitted to the ER
Admitted to general medical floor
Rehabilitation Referral
Long Term Care “bed blocker”

Acute Stroke Care: A Shift in the Treatment Paradigm

Time Is Brain

- Stroke is treatable
- Short window of opportunity
- Treatment requires stroke expertise and carries a risk
- Organized stroke care improves outcome

4.5
2019

TIA
Stroke Prevention Clinics
Carotid Pathway
Expedited Assessment
Expedited Investigations
Advanced Imaging

Stroke
Paramedic Prompt Card
Thrombolysis Program
Clot Retrieval Program
Stroke Unit Care
Integrated Stroke Program
Regional Stroke Program
Intracerebral Hemorrhage

► 10 - 20 percent of stroke

► 30 day mortality 30-50%
  • > 60% for anticoagulant associated ICH

► Functional independence at 6 months
  • Only 20%

Etiology

- **Medical**
  - Hypertensive ICH
  - Lobar ICH – amyloid angiopathy
  - Anticoagulant associated ICH
  - Hemorrhagic transformation of cerebral infarction

- **Surgical**
  - Subdural (traumatic or anticoagulant related)
  - Aneurysmal subarachnoid hemorrhage
  - Arteriovenous malformations

- **Other**

“Stroke Alert”
Acute Stroke Protocol
**IV tPA: Time-benefit interaction**

2-4% absolute decrease in good outcome per hour; 
~1-3% absolute increase in mortality per hour

**Number needed to treat to benefit and harm per 100 patients treated with intravenous recombinant tissue-type plasminogen activator (IV-TPA) for...**

**Time is Brain**

- 1,000,000 brain cells die every minute blood supply is cut off to the brain.
- "Every minute saved in treat to treatment period on average 4.2 days of near-normal IV" [Attenso et al., 2017, p. 212]
- "The ischemic brain ages 3.5 years each hour without treatment" [Grun, 2008, p. 263]
- 3–3% decrease in good outcome with each minute delay
- Every 30-minute delay, a reperfused brain is associated with a 10% relative decrease in the probability of a good clinical outcome (mRS 0-2)
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Lily

- 77 year old female
- Atrial Fibrillation
- CAD, CHF
- Pacemaker
- DM2
- HTN, DL

Presented with sudden left sided weakness

Sudden left sided weakness.

Chest pain of stroke = motor – sensory dysfunction
EKG of Stroke

<table>
<thead>
<tr>
<th>No.</th>
<th>Findings</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>R wave in lead II</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Left axis deviation</td>
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</tr>
<tr>
<td>3.</td>
<td>Pathologic Q waves</td>
<td>3</td>
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<tr>
<td>4.</td>
<td>T wave inversion</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>ST segment elevation</td>
<td>5</td>
</tr>
</tbody>
</table>

= Troponin Of Stroke
Stroke Mimics and Chameleons

Mimic
- Neurological or Medical Disorders that Look Like Stroke

Chameleon
- Stroke Disorders that Don't Look Like Stroke

Most Stroke Presents:
- Suddenly
- Focal Motor or Sensory Symptoms and Signs
- Speech and Language Disturbance